Notes.

THE triennial prize competition for the best original contribution to the scientific advance or the technical progress of electricity, known as the Fondation George Montefiore Prize, and administered by a committee of the Association of Electrical Engineers from the Montefiore Technical Institute of Liége, which had lapsed during the war, is now to be revived, and the competition which would have been held in 1917 is now announced for 1921. The prize will amount to 20,000 francs. Competitors must send in their work by April 30, 1921, and all particulars can be obtained from the Secretary, Fondation George Montefiore, rue Saint-Gilles 31, Liége, Belgium. Contributions may be in English or French, and if successful are published in French in the *Bulletin de l'Association des Ingénieurs Electriciens sortis de l'Institut Technique Montefiore.*

NELA RESEARCH LABORATORY was organised in 1908 under the directorship of Dr. Edward P. Hyde as the physical laboratory of the National Electric Lamp Association. The name was changed to Nela Research Laboratory in 1913, when the National Electric Lamp Association became the National Lamp Works of the General Electric Co. For some years the laboratory was devoted exclusively to the development of those sciences on which the art of lighting has its foundation, but in 1914 the functions of the laboratory were extended by the addition of a small section of applied science which had an immediate practical objective. The section of applied science is now being largely extended as a separate laboratory of applied science under the immediate direction of Mr. M. Luckiesh, who becomes director of applied science, and a new building is being constructed to house this branch of the work. Dr. Ernest Fox Nichols, formerly president of Dartmouth College, and more recently professor of physics at Yale University, has accepted an invitation to assume the immediate direction of the laboratory of pure science under the title of director of pure science. The work of this laboratory, which will be continued in the present building, will be somewhat further extended under the new organisation. The laboratory of pure science and the laboratory of applied science will together constitute the Nela Research Laboratories, and will be co-ordinated under the general direction of Dr. Hyde, who becomes director of research.

THE Public Health Department of the Portsmouth Town Council, having evidently investigated thoroughly the scientific evidence submitted to it on the practicability of preventing the infection of venereal disease by the use of a disinfectant immediately after exposure to risk, has recently issued two descriptive leaflets giving the information necessary to carry out the disinfectant process effectually. We understand that about a dozen other Health Departments are taking, or about to take, similar measures. The leaflets, entitled "What Every Man should Know," embody in clear words the ascertained knowledge on this matter which has been acquired by observation and experiment, and contain a succinct and useful summing-up of the multiform evils of venereal disease. The council states that it has come to the conclusion that, in view of the terrible effects of this disease on national and family life, it is its bounden duty to make public a knowledge of the means by which this scourge can be prevented. These leaflets pay due regard to both the social and scientific aspects of the much-discussed subject of prompt self-disinfection after incurring the risk of infection. The Portsmouth Public Health Department deserves to be congratulated on its action in this seriously important matter of sanitation.

"EPIDEMIC stupors" are often referred to in early records (seventeenth and eighteenth centuries) as occurring in times of influenza prevalence, and in this country encephalitis lethargica made its appearance immediately before and during the influenza epidemic of 1918–19. It is of interest, therefore, to record the occurrence of the same disease in Karachi at the end of 1919 during an epidemic of influenza. A full description of the outbreak, consisting of seventeen cases, is given by Capts. Malone and Maitra in the *Indian Journal of Medical Research* (vol. vii., No. 3).

IN the Journal of the Royal Society of Arts (vol. lxviii., No. 3533, August, 1920) we have a report of the Sir George Birdwood memorial lecture on "The Enduring Power of Hinduism" by Sir Valentine Chirol. Sir Valentine admits that he writes "not as a student, but merely as a layman." He has, however, been a diligent student, and his wide knowledge of contemporary politics and his experience of personal visits to many of the most important sites where archæological investigation is being conducted by Sir John Marshall have enabled him to construct a graphic picture of the historical development of India in relation to Hinduism. This lecture is thus of considerable importance, and it is rendered more attractive by the picturesqueness of the author's style. He has not followed so completely the trend of modern studies as to grasp the fact that the survival of Hinduism, in spite of the rise of Buddhism and the cataclysm of the Mohammedan invasion, is due to its amorphous character, its eclectism, and its capacity for adapting itself to novel conditions. But with these reservations the lecture gives an admirable account of the development of Hinduism.

THE character of the prehistoric culture of the people of the Malay Peninsula has as yet received inadequate attention, but much good work is being done in continuation of that summarised in "The Pagan Races" by Messrs. Skeat and Blagden. Thus we find in the Journal of the Federated Malay States Museum (vol. ix., part 1, January, 1920) an excellent account by Mr. I. H. N. Evans of the exploration of a rock shelter in the Batu Kurau Parish, Perak, with a description of the flint-weapon industry. In more recent times the influence of Islam has been predominant, but it has absorbed and assimilated much of the indigenous animistic beliefs. In this connection, in the same issue of the journal, Mr. R. O. Winstedt refers to some curious analogies between the local customs and those of the Brahmans of South

India, which point to the widespread influence of Hinduism in the peninsula prior to the establishment of Islam as the dominant faith.

MR. HENRY BALFOUR has reprinted his interesting presidential address from the Proceedings of the Somersetshire Archæological and Natural History Society (vol. lxv., 1919, pp. xxiii *sqq.*). He claims connection with Somersetshire on the ground that his late colleague, Sir E. B. Tylor, was a Somersetshire man by birth, and that Mr. H. St. G. Gray, now curator of the Taunton Museum, was his own assistant at Oxford. In his address Mr. Balfour crosses the county border to Rushmore and Cranborne Chase, on the border of Wilts and Dorset, the home of a great archæologist and ethnologist, Col. Pitt Rivers. He closes his review of this notable man with the remark that "he has left his own record of diligent and broad-minded research, and the example afforded by his enthusiasm, characteristically tempered with caution, should have the effect both of stimulating and of restraining the work not only of this generation, but of generations to come."

THE Quarterly Summary for July issued by the Royal Botanic Society of London contains notes on some plants of interest in the gardens. The gigantic floating leaves of the *Victoria regia* water-lily are now 7 ft. in diameter, and, as each new leaf at this time of year exceeds its predecessor, it seems likely that they will reach the maximum of 8½ ft. by the end of August. As the sunlight becomes less the new leaves get smaller, until the plant dies down in October. One of the earliest accounts of this remarkable tropical American water-lily was that given by Lindley in the Proceedings of the society in 1839 (vol. i.). The plant was discovered by Robert Schomburgk, the traveller, on the River Bernice, in Guiana, and the detailed description which he sent home was sufficient to enable Lindley to recognise it as a distinct genus of water-lilies, which was, by permission, dedicated to the young Queen. Efforts to grow the plant at Kew were at first unsuccessful, but in 1849 some fifty plants were successfully raised from seed and distributed to various gardens. The fine specimen growing at Kew is one of the most popular attractions of the Royal Gardens. Another interesting plant in the same tank at the Botanic Gardens is the Lotus, *Nelumbium speciosum,* which has flowered profusely this year. Its large salver-shaped leaves and tall pink flowers rising from the water present a striking appearance. The plant was held in esteem by many ancient peoples in the East; in Egypt paintings of it decorate the temples, and it is still associated with temples in India, where the long, fleshy roots are eaten as well as the oval, nut-like seeds. The society has also been making experimental growths of the soya bean, with the view of ascertaining the most suitable variety for cultivation in this country.

AMONG the recently issued reports of the Canadian Arctic Expedition, 1913–18, are two on the Crustacea, which form part of vol. vii. An account of the marine Copepoda is given by Prof. Arthur Willey (in Part K) and of the Cladocera by Dr. Chancey Juday (in Part H). Cladocera have been examined previously from Greenland and from Alaska, but not from the intervening region of Arctic America. Seven fresh-water and two marine species are recorded, all of which are well known and have a wide geographical range. The fresh-water species belong to the genera Daphnia (*pulex* and *longispina*), Bosmina, Eurycercus, Alona, Chydorus, and Polyphemus, and the marine species to Podon and Evadne respectively. The common *Daphnia pulex* is also recorded from Polaris Bay, Greenland, about 82° N. latitude, where it was collected by the United States North Polar Expedition on August 1, 1872. This seems to be the most northerly record for any of the Cladocera. The material of this species from Polaris Bay consists of several hundred specimens, the great majority being females with ephippia. The specimens of *Daphnia pulex* in the various catches of the Canadian Expedition show that the winter eggs in the ephippia probably hatch during the latter half of June; that females bearing parthenogenetic or summer eggs appear about the first week in July; and that males and ephippial females make their appearance in late July and in August. The season is therefore a relatively short one

A NOTEWORTHY contribution to the study of that fascinating group of insects, the parasitic aculeate Hymenoptera, is made by Prof. W. M. Wheeler in the Proceedings of the American Philosophical Society (vol. lviii., 1919, No. 1). Prof. Wheeler gives a comprehensive summary of the subject, citing and criticising a long array of literature, and discussing the evolution of the parasitic habit. He is disposed to regard the aculeate parasites as originating directly or indirectly from the insects which serve as their hosts. "The object of the parasite is to secure the provisions accumulated by the host for its own progeny. This involves a destruction of the egg or young larva of the host." But a higher specialisation is reached by the social insects which foster the host-brood so that their own young may be reared and fed.

ANATOMICAL details of some morphological importance are elucidated by Prof. G. H. Carpenter and Mr. F. J. S. Pollard in a recent paper (Proc. R. Irish Acad., B, vol. xxxiv., No. 4) on the presence of lateral spiracles in the larvæ of warble-flies (Hypoderma). Six pairs of these vestigial structures, suggesting a primitive peripneustic condition of the respiratory system, are recognisable in the ripe warble-maggot, connected with the outer lateral tracheæ by fine, thread-like, solidified air-tubes.

DR. E. H. PASCOE, of the Geological Survey of India, revived at a meeting of the Geological Society of London in March, 1919, in a new form the question of the relations of the Indus, the Brahmaputra, and the Ganges (Quart. Journ. Geol. Soc., vol. lxxv., p. 138, 1920). He traces back the now divided system to a river, the Indobrahm, the headwaters of which were in, or soon cut back into, the Brahmaputra region of Assam, while the mouth was in the Indus region of the Arabian Sea. This river originated in the beginning of the Siwalik epoch, when the depression at the foot of the Himalayas ceased to be the scene of conflicting lagoon and terrestrial conditions, and became finally silted up. The great river was guided along this depression westward, while a contemporaneous river ran on the Tibetan side of the range, of which the alluvium remains from Pemakoi, north-east of the Bay of Bengal, to Gilgit, north of the great Indus bend. This river joined the Oxus, or reached the Arabian Sea by an independent course. It is urged that the Indobrahm captured the upper waters of the northern river by cutting back into them along its tributaries at successive points in the recesses of the range from which the Indus now runs south-westward. The speakers in the discussion of the paper, including Mr. R. D. Oldham, approved the main geographical contentions, but laid more stress than the author on earth-movements in determining the diversions and the courses of the tributaries through the hills.

SIMULTANEOUSLY with the investigations of Dr. Pascoe, Dr. G. E. Pilgrim, of the Geological Survey of India, put forward his suggestion of a great Pliocene river running on the south side of the Himalayas from Assam to the Indus course. Dr. Pilgrim's paper and maps (Journ. Asiatic Soc. of Bengal, vol. xv., p. 81, 1919) appeared, indeed, before the printing of Dr. Pascoe's work, and, as that author points out, the argument based on the direction from which the tributaries meet their primaries in the mountain-belt originated with Dr. Pilgrim. The two papers should be read together, and they form a great addition to our conceptions of the past geography of India. Dr. Pilgrim gives prominence to earth-movements as promoting the dislocation of the Assam-Punjab or Siwalik River. His maps of Western Asia in Eocene, Miocene, and Pliocene times are highly useful.

THE "Fossils from the Miura Peninsula and its Immediate North" form the subject of an important memoir by Prof. M. Yokoyama (Journ. Coll. Sci., Tokyo Imp. Univ., vol. xxxix., art. 6, pp. 193, 20 pls.). The geological formations of the peninsula are in part undoubtedly Pliocene, and in part either Pliocene or Pleistocene; those of the plain are divisible into an upper, sub-aerial, and a lower marine series several hundred feet in thickness. The sub-aerial series is made up of a brown loam, an altered volcanic ash, wholly devoid of stratification and organic remains. The marine series, which the author names the Musashino formation, is divisible into an upper and a lower series. In the upper, remains of *Elephas namadicus,* Falc. and Caut., are not uncommon, and are perhaps the most important of the fossil contents. The Lower Musashino beds are provisionally divided by the author into six zones. From the whole series, 232 species of Mollusca and 6 of Brachiopoda are recorded, 91 of the former and 2 of the latter being described as new; the whole are well illustrated, but the nomenclature, as, alas! too generally the case in papers of this class, lags behind the times. The number of forms not known to be living is 88, or about 37 per cent. of the whole fauna, and 7 species have not yet been found in Japanese waters. The author therefore classes these Musashino beds as Pliocene of about the same age as the English Red Crag of Newbourne=Austelien of the Netherlands.

THE *Geologische Reichsanstalt* of Vienna, which was able in Imperial times to spread the influence of a great school of geology over Polish, Transylvanian, and Dalmatian lands, has been forced to adopt, from the opening of 1920, the restricted title of *Geologische Staatsanstalt.* Dr. Emil Tietze, the director, retires after long and honourable service, recognising in the "geschickte Diplomatie des Königs Eduard von England" the prime cause of the restriction of his official field. The *Verhandlungen* for 1919 indicate many changes on the staff, some workers whose names are familiar having become aliens through territorial readjustments. We must hope that their common science will maintain the federal spirit shown in the last publications of the *Reichsanstalt.* Many of the papers deal with mountain structure. Dr. F. Heritsch claims that the discovery of tabulate corals in the supposed Mesozoic mantle of the Hohe Tauern disposes of the idea that the mass has been imported by overfolding, and we may be prepared for continued criticism in Austria of the theory of recumbent folds in general. Dr. O. Ampferer, who becomes one of the *Chefgeologen* and also a *Bergrat,* contributes a paper in his lucid and systematic manner on the very considerable influence that deep notches (*Kerben*) cut by erosion may have on tectonic features when a region comes under processes of crust-folding.

CHEMICAL as well as geological workers will welcome a new and enlarged edition of W. F. Hillebrand's "Analysis of Silicate and Carbonate Rocks" (Bull. 700, U.S. Geological Survey, 1919). The accurate methods described are obviously of service in the analysis of potassium silicates and refractories for commercial use, as well as in the refined discrimination of types of natural rock. The importance of the estimation of small quantities of unusual or commonly overlooked constituents is here pointed out. At the same time this may be quite unnecessary in many cases of ordinary practice, and for these a system of "condensed analysis" is charitably described in the concluding pages.

AN interesting example of the applications of zonal palæontology is afforded by Messrs. F. L. Kitchin and J. Pringle, who show (*Geol. Magazine,* vol. lvii., pp. 4, 52, and 100, 1920) that a mass of Gault and Cenomanian strata at Shenley, near Leighton Buzzard, 250 yards long and 150 yards wide, has been inverted on Lower Greensand. The fossils provide the clue, being in inverse succession to those in the undisturbed beds of the neighbourhood. As a boulder pushed by ice, this presents some parallel with the famous block described by Mr. R. G. Carruthers in the heart of Caithness (NATURE, vol. lxxxix., p. 229), in which a quarry has been opened 160 yards in length.

THE occurrence of barytes in the upper parts of lodes containing metallic sulphides is probably well recognised, and postulates an infiltration of barium chloride upwards during the formation of the lode or downwards to meet the sulphates that are in solution. Mr. H. W. Greenwood suggests (Proc. Liverpool Geol. Soc., vol. xii., part 4, p. 355, 1920) that the barytes which is common in the English Triassic strata, and mainly found in the upper beds, was derived from overlying Jurassic strata. The source of an exceptional quantity of barium in the Jurassic seas is not indicated. Might it not have been brought into the Triassic pan-deposits from the denudation of our Armorican lode-formations?

IN a general "Review of the Reptilian Fauna of the Karroo System" (Trans. Geol. Soc. S. Africa, vol. xxii., p. 13, 1920) Mr. S. H. Haughton concludes that the preservation of complete skeletons of Pareiasaurians in the beds south of Prince Albert Road station was determined by a rapid deposition of fine mud or silt. In the discussion on this paper (Proc. *ibid.*, p. xli.) Dr. van Hoepen supported, by his personal observations on the skeletons of various genera, the view of entombment in swampy lakes rather than, as Mr. Watson had suggested, in wind-borne sand. Dr. du Toit stated that he was unwilling to return to the old supposition of a general Karroo lake in Lower Beaufort times, but he pictured a surface "that became periodically inundated and, at certain stages, semi-arid in climate."

THE present summer has so far experienced some disturbing weather anomalies, the abnormal features being chiefly the persistent low temperatures and the frequent heavy rains. Some improvement has been generally experienced during the present month owing to the greater prevalence of anticyclonic conditions. A disturbance, however, traversed the north of Ireland and the southern portion of Scotland on the night of August 17 and the early part of August 18. The storm area followed a track fairly due east, and was preceded and accompanied by a heavy downpour of rain which occasioned considerable damage in Edinburgh and the surrounding neighbourhood. The rainfall at Edinburgh for the twenty-four hours to Wednesday morning was 3·1 in., and in twelve hours the fall amounted to 2 in. At Leith the fall in twenty-four hours was 2·84 in., and at Renfrew 2·80 in. A subsidiary disturbance occasioned heavy rain in the south of England, and at Falmouth the fall was 2·21 in. between 8 a.m. and 7 p.m. on August 18. Very cool northerly winds spread over the country in the rear of these disturbances. On the morning of August 20 frost occurred on the ground in the open in Scotland and in parts of England, whilst in places the thermometer in the screen fell to 36°. At Greenwich the exposed thermometer registered 33° and in the shade 41°, which was only 3° above the lowest figure reached in August since 1841, 38° being recorded in 1864, when the exposed thermometer fell to 27°. At Kew it was the coldest August night since 1891, and at Falmouth it was as cold as any time in August during the last half-century.

AMONG recent pamphlets issued officially by the Meteorological Office under the heading of Professional Notes is one by Mr. J. S. Dines entitled "Methods of Computation for Pilot-balloon Ascents." Without claiming to be exhaustive, this gives some account of, at any rate, the better-known methods of determining wind velocities at different heights. Part i. deals with the most practised single-theodolite ascents, and nine methods are described, including those in general use by the military Meteorological Services of France, Italy, and the United States, partly graphical and partly depending upon a special slide-rule. The ideal method for open-air work discards the graphical method so far as possible. Part ii., dealing with double-theodolite ascents, gives six methods of dealing with these, including, as does part i., the Meteorological Office method, which depends entirely on the slide-rule. Part iii., on balloon-tail, gives two graphical methods besides the Meteorological Office slide-rule plan. Perhaps more interesting than any of these is the appendix dealing with various methods of obtaining velocities at heights when cloud-sheets prevent the observation of pilot-balloons. The smoke from anti-aircraft shells set to explode at a given height can be observed through a comparatively small break in the cloud, and even when the cloud-sheet is quite unbroken the position of bomb-bursts can be determined by sound-ranging from the ground or by observation from an aeroplane.

IT was scarcely likely that proposals so far-reaching in effect and importance as those put forward by the Egyptian Ministry of Public Works for the extensive development of the cultivable area of the valley of the Nile by the construction of a dam and other irrigation works should escape a large measure of hostile criticism, and we have on several occasions alluded to the attacks made by Sir William Willcocks on the validity and trustworthiness of the data on which the scheme is founded. These attacks, it will be recalled, led to the appointment of a Special International Commission of Inquiry, which has had the projects under review. We have now received a copy of a brochure issued by an independent Commission of Native Egyptian Engineers, who take up an attitude of strong and uncompromising opposition to the official proposals on the grounds that there are obvious inconsistencies in the fundamental calculations, and an evident tendency on the part of the Technical Adviser to the Egyptian Government to "adapt" his data to the requirements of the case. The objectors state that they fear that any attempt to cut off or decrease the supply of water and silt to Egypt from the Blue Nile will be fraught with disastrous consequences, and they set out their arguments in a series of sixteen criticisms of the official scheme. An addendum by Dr. Mahgoub Sabitt, professor of medical jurisprudence and toxicology at the Egyptian University, advances reasons for considering the construction of the proposed dam likely to prove detrimental to public health. A protest is also entered against the alleged secrecy in which the proposals were prepared and formulated, and finally a call is made for a mixed committee of native and foreign engineers, "free from all bias," to investigate the matter thoroughly on account of its vital importance to the welfare of the whole country.

THE paper by W. L. Cheney on the measurement of hysteresis values when using high magnetising forces, which has just been published by the U.S. Bureau of Standards (Paper No. 383), will be of interest to all engaged in magnetic research. When employing ordinary methods it is extremely difficult to get the accurate values of the remanent induction and the coercive force owing to what has been called magnetic viscosity. This probably also slightly affects the author's results. His method is a modification of the isthmus method, and consists essentially of a du Bois electromagnet with flat pole-pieces separated by an air-gap and pierced coaxially so that a rod may be inserted. The magnetic force and the induction are measured by suitable coaxial test coils. Magnetic forces up to 2500 gausses were employed. Quenching eutectoid steel (0·85 per cent. carbon) in oil lowered the remanent induction, but considerably increased the coercive force. Experiments were made on the K.S. magnet steel prepared by Prof. Honda, and the high coercive force of 200 gausses was obtained when the specimen had been magnetised with 800 gausses.

AN uncommon piece of work is described in *Engineering* for August 13 in the form of a long wooden jib for a derrick crane designed and constructed for the Admiralty during the war by the Imber Court Engineering Works, Thames Ditton, Surrey. The crane, with a 50-ft. post, had to be capable of raising a 3-ton load up to a platform 100 ft. high. The jib was 135 ft. long from the centre of the bottom pin to the centre of the rope-wheel, and the wooden construction adopted resulted in a jib being produced of one-third the weight and having a higher factor of safety than steel would have given. Including the rope-wheel and end casings, the jib complete weighed only 2 tons 13 cwt. The jib was built up of four corner-posts, each post being made of nine laminations of Oregon pine glued together with waterproof glue. The jib was divided into panels by struts, also of Oregon pine, and each panel had diagonal bracing, both longitudinal and transverse; these bracings were composed of stranded piano-wire. The struts were fixed to the corner-posts by welded steel clamping boxes, to which the diagonal braces were also connected by means of bolts on which the wire was wound. The bolt-heads were formed with teeth, with which two spring pawls engaged, so that turning the bolt tightened the wires and slacking back was prevented by the pawls.

THE concluding volume—the sixth—of the Scientific Papers of the late Lord Rayleigh is to be published by the Cambridge University Press in the spring of next year. It will range over the period 1911–20. Among the other forthcoming publications of the Cambridge University Press is "The Spectrum of Nova Geminorum II.," by F. J. M. Stratton. It will constitute vol. iv., part i., of the Annals of the Solar Physics Observatory, and is promised for the end of the present year.

Our Astronomical Column.

DISCOVERY OF A NOVA IN CYGNUS.—Mr. W. F. Denning, of Bristol, writes that on the evening of August 20 he observed a star previously unknown to him in the northern region of Cygnus. He has made it a practice during the last few years of carefully searching for these objects while he has been watching for meteors. The object when discerned on August 20 was of about $3\frac{1}{2}$ magnitude, and its rough position was in R.A. 19h. 56m. and declination $53\frac{1}{2}^\circ$ N. It formed a little triangle with the stars ψ and d (20) Cygni. On referring to star-charts, etc., Mr. Denning quite failed to identify the object in question, and therefore concluded it to be a new star.

The position of the nova in the Milky Way is in accordance with past experience, for nearly all past novæ have been in the Milky Way or on its borders.

Mr. Denning saw the present object again on August 21 in the openings between swiftly passing clouds, and it appeared of about the same brightness as on the previous night, but only hurried glimpses were obtainable.

On August 22 the brightness was estimated = 2·8 mag., and on August 23, 2·2 mag., so that its light is increasing.

PARALLAX OF THE B-TYPE STAR BOSS 1517.—Mr. J. Voûte recently announced a large parallax and proper motion for this star. Mr. A. J. Roy showed, however, that the true proper motion in R.A. was only one-tenth of Mr. Voûte's value, being −0·023″; that in declination is +0·129″. Mr. Voûte has recomputed the parallax with this value, and finds 0·048″, which is in good accord with Kapteyn's hypothetical value 0·033″.

The star is one of the nearest of the B stars, being at about the same distance as Achernar. Its chief interest lies in its surprisingly low absolute magnitude for a B-type star, its apparent visual magnitude being 5·9. According to Mr. R. E. Wilson, of the D. O. Mills Observatory, the radial velocity is +102 km./sec., or +83 corrected for the sun's motion. The position for 1910 is R.A. 6h. 0m. 59·436s., south decl. 32° 10′ 10·91″.

PUBLICATIONS OF THE ASTRONOMICAL LABORATORY AT GRONINGEN, NO. 29.—This is a further instalment of Prof. J. C. Kapteyn's valuable researches on the stellar system. He summarises the large amount of new material that has become available since he first took up the subject, and shows that the time is appropriate for a fresh investigation of the secular parallaxes of stars of different magnitudes and spectral classes. The secular parallax is defined as the angle subtended at the star by the unforeshortened annual motion of the sun. Assuming its speed to be $19\frac{1}{2}$ km./sec., then annual parallax = sec. par. × 0·243. The following values are found for the variation of parallax with galactic latitude: From latitude 90° to 40°, parallax = 1·17 of mean; from 40° to 20°, 0·96 of mean; and from 20° to 0°, 0·87 of mean.

Many investigators have found discordant values of the declination of the solar apex as derived from stars of different magnitudes. Prof. Kapteyn is inclined to attribute this to imperfect elimination of magnitude equation in declination from the catalogues employed, since he makes the discordance very small.

Prof. Kapteyn emphasises the importance of separating stars of different spectral type in these investigations. In view of the great range of absolute magnitude according to type, he says that the grouping of all types is like making a single statistical investigation of the